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41 ABSTRACT

The manufacturing method of the invention is applied to manufacture a unit fuel cell 20, which has a hydrogen permeable metal layer 22 of a hydrogen-permeable metal and an electrolyte layer 21 that is located on the hydrogen permeable metal layer 22 and has proton conductivity. The method first forms the electrolyte layer 21 on the hydrogen permeable metal layer 22, and subsequently forms an electrically conductive cathode 24 on the electrolyte layer 21 to block off an electrical connection between the cathode 24 and the hydrogen-permeable metal layer 22. The method releases Pd toward the electrolyte layer 21 in a direction substantially perpendicular to the electrolyte layer 21 to form a Pd layer as the cathode 24 that is thinner than the electrolyte layer 21. This arrangement of the invention effective prevents a potential short circuit, for example, between the cathode and the hydrogen permeable metal layer, in the fuel cell, due to pores present in the electrolyte layer.